


Notice of Allowability	Application No.	Applicant(s)	
	10/690,204	WANG ET AL.	
	Examiner	Art Unit	
	Marcos D. Pizarro-Crespo	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendments filed on 10/20/2003 and 3/1/2004.
2. ☒ The allowed claim(s) is/are 28-30 and 32-36.
3. ☒ The drawings filed on 20 October 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>3</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

Application/Control Number: 10/690,204 (Allowance)
Art Unit: 2814

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Attorney's Docket Number: 2101397-911401

Filing Date: 10/20/2003

Claimed Priority Dates: 7/26/2001 (Continuation 09/916,555)
4/26/2001 (Provisional 60/287,047)
3/12/2001 (Provisional 60/275,517)
1/5/2001 (Provisional 60/242,096)
9/20/2000 (Provisional 60/234,314)

Applicant(s): Wang et al.

Examiner: Marcos D. Pizarro-Crespo

DETAILED ACTION

This Office action responds to the amendments filed on 10/20/2003 and 3/1/2004.

Acknowledgment

1. The amendments filed on 10/20/2003 and 3/1/2004 have been entered. The present Office action is made with the suggested amendments being fully considered. Accordingly, pending in this Office action are claims 28-30 and 32-36.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

3. **Amendments to the Specification:**

Amend the first paragraph of the specification as follows:

This is a continuation of U.S. Application 09/916,555, filed July 26, 2001, now
U.S. Patent No. 6,727,545, which claims the benefit of U.S. Provisional

Application No. 60/234,314, filed September 20, 2000 and U.S. Provisional Application No. 60/242,096, filed October 19, 2000, U.S. Provisional Application No. 60/260,167, filed January 5, 2001, U.S. Provisional Application No. 60/275,517, filed March 12, 2001, and U.S. Provisional Application No. 60/287,047, filed April 26, 2001.

Reasons for Allowance

4. Claims 28-30 and 32-36 are allowed.
5. The following is an examiner's statement of reasons for allowance:

The primary reason for allowing the claims is the inclusion in all of the claims of the limitation specifying that the first and second ends are disposed laterally adjacent to and insulated from each other such that no portion of the control gate is disposed directly between the floating gate and the source region, and the limitation of an insulation material disposed directly between the floating gate and the second end having a thickness permitting Fowler-Nordheim tunneling of charges therethrough.

In the amendment filed on 10/20/2003, the applicants requested that the reasons set forth in the response (dated 8/22/2003 and filed 8/25/2003) to the final Office action (dated 6/26/2003) in the parent application (09/916,555) to this continuation application be considered. The applicants contended in said response (see, e.g., pp.11/II.1-pp.12/II.4) that the insulation material of the applied prior art differently shows tunneling occurring between the sharp tip of a floating gate and the mid-section of a control gate instead of the claimed tunneling between the floating gate and the second end of the control gate which occurs through an insulation layer that is disposed directly between

the second end and the floating electrode. The examiner agreed and allowed the application.

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Johnshon (JP 2001-127179) and Wang (WO 92-18980) show floating gate memory cells and self-aligned methods of forming the cells on a semiconductor substrate.

8. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. Papers should be faxed to Art Unit 2814 via the Art Unit 2814 Fax Center. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(703) 872-9306**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Marcos D. Pizarro-Crespo** at **(571) 272-1716** and between the hours of 9:30 AM to 8:00 PM (Eastern Standard Time) Monday through Thursday or by e-mail via Marcos.Pizarro@uspto.gov. If attempts to reach the

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examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy, can be reached on (571) 272-1705.

10. Any inquiry of a general nature or relating to the status of this application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

11. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/314-326	9/23/2004
Other Documentation:	
Electronic Database(s): EAST (USPAT, EPO, JPO)	9/23/2004



LONG PHAM
PRIMARY EXAMINER

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Patent Examiner

Art Unit 2814

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